

1. A method for increasing the sensitivity of tumor cells to chemotherapeutic agents, comprising the step of introducing an anticode oligomer to tumor cells which express the bcl-2 gene under conditions sufficient to reduce bcl-2 gene expression in said tumor cells.

3. The method of claim 1 wherein the step of introducing comprises:

(b) expressing said anticodon oligomer.

5. The method of claim 4 wherein said sequence portion is a strategic site in pre-mRNA expressed from said bcl-2 gene.

7. The method of claim 1 wherein said anticodon oligomer is brought into contact with said cells under conditions where the concentration of said anticodon oligomer is from about 0.001 to about 100 micromolar.

(a) introducing an antisense anticodon oligomer to tumor cells which express the bcl-2 gene under conditions sufficient to reduce bcl-2 gene expression in said tumor cells; and

9. The method of claim 8 wherein said
15 chemotherapeutic agent is selected from the group of
chemotherapeutic agents consisting of antimetabolites,
alkylating agents, plant alkaloids, and antibiotics.

20 (a) transfecting said tumor cells with a vector comprising a sequence that encodes an anticodon oligomer; and

25 11. The method of claim 8 wherein said anticodon oligomer has a sequence which binds with a sequence portion of RNA expressed from the bcl-2 gene, which RNA comprises a coding region essentially for bcl-2 protein.

12. The method of claim 11 wherein said
30 sequence portion is a strategic site in pre-RNA expressed
from said bcl-2 gene.

13. The method of claim 12 wherein said anticodon oligomer is substantially complementary to and binds to a strategic site in said pre-mRNA.

5 14. The method of claim 8 wherein said anticodon oligomer is brought into contact with said cells under conditions where the concentration of said anticodon oligomer is from about 0.001 to about 100 micromolar.

10 15. A method of inhibiting the growth of cancer cells which express the human bcl-2 gene, comprising the steps of:

(a) providing an anticodon oligomer which binds with a sequence portion of RNA expressed from the human bcl-2 gene, which anticodon oligomer when brought in contact with tumor cells expressing the human bcl-2 gene, has the property of reducing the expression of at least one bcl-2 gene product; and

(b) contacting said cells with said anticodon oligomer under conditions sufficient to inhibit growth of said cells.

20 16. The method of claim 15 wherein said anticodon oligomer is an antisense oligonucleotide or analog thereof.

25 17. The method of claim 15 wherein said sequence portion is a strategic site in pre-mRNA expressed from said bcl-2 gene.

18. The method of claim 17 wherein said anticodon oligomer is substantially complementary to and binds to a strategic site in said pre-mRNA.

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5 20. An anticode oligomer useful for inhibiting
cells expressing the human bcl-2 gene, comprising an
anticode oligomer which binds with a sequence portion of
RNA expressed from the human bcl-2 gene, which anticode
oligomer, when brought in contact with tumor cells
10 expressing the human bcl-2 gene, has the property of
reducing the expression of at least one bcl-2 gene
product and thereby inducing programmed cell death of
said tumor cells.

22. The anticode oligomer of claim 20 wherein said sequence portion is a strategic site in pre-mRNA expressed from said bcl-2 gene.

23. The anticode oligomer of claim 22 wherein said anticode oligomer is substantially complementary to and binds to a strategic site in the pre-mRNA.

24. A composition useful for inhibiting cells expressing the human bcl-2 gene, comprising an anticode oligomer which binds with a sequence portion of RNA expressed from the human bcl-2 gene, which anticode oligomer, when brought in contact with tumor cells expressing the human bcl-2 gene, has the property of reducing the expression of at least one bcl-2 gene product and thereby inducing programmed cell death of said tumor cells, together with a pharmaceutically acceptable carrier.

25. The composition of claim 24 wherein said anticodon oligomer is an antisense oligonucleotide or an analog thereof.

5 26. The composition of claim 24 wherein said sequence portion is a strategic site in pre-mRNA expressed from said bcl-2 gene.

27. The composition of claim 25 wherein said anticodon oligomer is substantially complementary to and binds to a strategic site in said pre-mRNA.

10 28. A vector for transfecting human tumor cells comprising a nucleotide sequence that encodes an anticodon oligomer which reduces expression from the human bcl-2 gene in said tumor cells.

15 29. The vector of claim 28 wherein said anticodon oligomer is an oligonucleotide which binds with a sequence portion of RNA expressed from the human bcl-2 gene, which antisense oligonucleotide has the property of reducing the expression of at least one bcl-2 gene product and thereby inducing programmed cell death of
20 said tumor cells.

30. The vector of claim 29 wherein said sequence portion is a strategic site in pre-mRNA expressed from said bcl-2 gene.

25 31. The vector of claim 30 wherein said antisense oligonucleotide is substantially complementary to and binds to a strategic site in the pre-mRNA.

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